

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A forging die production method comprising:  
~~providing a cutting step which employs, as a cutting tool, a ball end mill having a surface which has undergone a hardening treatment; and in which~~  
~~providing a forging die material is to be cut by the ball mill end; and, with~~  
~~cutting the forging die material by controlling the ball end mill being controlled so that a~~  
length of tool extension L (mm), radius R (mm) of a cutting edge of the ball end mill, spindle speed A (rpm) and feed rate B (mm/min) satisfy  $(B/A)^2 \times (L/(2 \times R)) = 0.01$  to  $0.05$ , and  
~~wherein the forging die production method includes at least rough cutting, heat treatment,~~  
~~finish cutting and profile cutting, the cutting step is for performing the profile cutting, the profile~~  
~~cutting includes at least three steps wherein pick feeds in respective steps are in proportions of~~  
~~(1.2 to 2) : (0.2 to 0.5) : (0.03 to 0.05), and a feed direction includes at least one of a direction in~~  
~~relation to contour line processing and a direction in relation to circulation milling.~~  
  
2. (currently amended): A forging die production method according to claim 1, wherein  
the method further comprises selecting as the forging die material to be cut a material having has  
a Rockwell C hardness of 45 to 62.

3. (previously presented): A forging die production method according to claim 1, wherein cutting oil is directly applied to the cutting tool so that the cutting oil flows in a downward direction during cutting.

4. (canceled).

5. (previously presented): A forging die production method according to claim 1, wherein the forging die material is cut to have a compound curvature in a corner recess through the cutting step.

6. (canceled).

7. (previously presented): A forging die produced through the forging die production method according to claim 1, wherein the forging die has a surface roughness R<sub>max</sub> of 5 μm or less and is formed to have a die cavity including a corner recess of a compound curvature.

8. (canceled).

9. (previously presented): A forging die production method according to claim 5, wherein the method further comprises selecting as the forging die material to be cut a material having has a Rockwell C hardness of 45 to 62.

10. (previously presented): A forging die production method according to claim 5, wherein cutting oil is directly applied to the cutting tool so that the cutting oil flows in a downward direction during cutting.

11. (canceled).